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G. K. GILBERT, *Auditor*.

The following is a list of the officers elected to serve at the next meeting, including also the permanent secretary and treasurer previously elected for a term of five years:

President—Asaph Hall, U. S. N., retired.

Permanent Secretary—L. O. Howard, chief entomologist, Agricultural Department, Washington.

Assistant Permanent Secretary—Richard Clifton, Agricultural Department, Washington.

General Secretary—D. T. MacDougal, director of the laboratories, New York Botanical Gardens.

Secretary of Council—Professor H. B. Ward, of the University of Nebraska.

Treasurer—Professor R. S. Woodward, Columbia University.

OFFICERS OF SECTIONS.

A (Mathematics and Astronomy)—*Vice-president*, G. W. Hough, Northwestern University; *secretary*, E. S. Crawley, University of Pennsylvania.

B (Physics)—*Vice-president*, W. S. Franklin, Lehigh University; *secretary*, E. F. Nichols, Ohio State University.

C (Chemistry)—*Vice-president*, H. A. Weber, Ohio State University; *secretary*, F. C. Phillips, Western University.

D (Mechanical Science and Engineering)—*Vice-president*, J. J. Flather, University of Minnesota; *secretary*, C. A. Waldo, Purdue University.

E (Geology and Geography)—*Vice-president*, O. A. Derby, San Paulo, Brazil; *secretary*, F. P. Gulliver, Southboro, Mass.

F (Zoology)—*Vice-president*, C. C. Nutting, Iowa State University; *secretary*, C. W. Stiles, Department of Agriculture, Washington.

G (Botany)—*Vice-president*, D. H. Campbell, Leland Stanford University; *secretary*, H. Von Schrenk, Shaw School of Botany, St. Louis.

H (Anthropology)—Stewart Culin, University of Pennsylvania; *secretary*, H. I. Smith, American Museum of Natural History, New York.

I (Social and Economic Science)—Carroll D. Wright, commissioner of labor, Washington; *secretary*, W. F. Wilcox, Cornell University.

K (Experimental Medicine and Physiology)—*Vice-president*, Dr. W. H. Welch, Johns Hopkins University; *secretary*, Dr. F. S. Lee, Columbia University.

The recommendation of the general committee of last year that the Association meet at Pittsburg in the summer of 1902, was supplemented by Dr. W. J. Holland, Director of the Carnegie Institute, and it was decided to meet at Pittsburg from June 28 to July 3, inclusive, 1902.

The general committee recommended also that a meeting be held in Washington, D. C., during 'Convocation Week,' or the week in which the first of January falls, in 1903.

Professor Wm. Trelease and C. M. Woodward presented an invitation to the Association to meet in St. Louis during the time of the Louisiana Purchase Exposition in 1903. This invitation was referred, without formal recommendation, to the general committee of 1902.

JOHN M. COULTER,
General Secretary.

REMARKS OF PRESIDENT MINOT.*

I WAS impressed on my way here with the somewhat unexpected arrangements I found for securing my services as a visitor at Denver. We found it easy to get here because we paid for a night's journey upon the road and owing to the delay of the train we got two nights' journey instead of one, showing how attractive it is here and how liberally one is treated coming to Denver. But when I went to your ticket office to in-

* Made at the opening general session, and reported stenographically.

quire about going away I found we had to pay the price of two nights in order to pass one when leaving your city. So there seems to be every inducement to prolong our stay. I could not but think, as I read in the newspaper that this Association had fallen upon Denver, of an anecdote related to me a few days ago in the Yellowstone, when I was told a German visitor had been there and seen the geysers, and afterwards had gone to Niagara. When asked how he liked it, he said, "Oh, that is very fine, but you shall see the geysers, they fall oop." That is the way we have 'fallen upon' Denver. We are all wonderfully impressed by the extraordinary endowments of nature in this state. It is almost incredible to a visitor coming here for the first time that any tract of land should be so richly provided with all the raw resources which man needs for the construction of civilization. We, like you, are laboring in this process of building up civilization. As you have been working in your state, so we work in every territory of nature seeking to bring forth her hidden treasures and render them available for the service of mankind and for establishing a higher life in humanity than has yet been. It is not so in the east with us at home. There civilization has been going on longer. The resources which nature provides are known. The work of civilization proceeds there in established channels, and I felt at once in coming here that the newness and creative character of your work in Colorado made a sympathetic atmosphere for us who are striving to create what is new and get from nature her unused treasures which we can employ hereafter. Everything therefore speaks of sympathy and understanding between the practical life of Colorado and the scientific life of this Association. And we are, too, nearly co-temporaries. The Association was before Denver was, but not by many years. We have, as it were, grown

up together and have lived through the same period of our country's history. Therein, too, lies the power of appreciation—mutual, I believe—between you and us who are here playing a double rôle of both guests and, in our meetings, of your hosts—for hosts we would gladly be, inviting you to our meetings, for we are a kind of intellectual Salvation Army. We do not profess to do much for the saving of souls as our direct work, though we believe that all good work tends to that end, but we do believe that we can do a great deal to save brains, they being the only things in nature which in being used are best saved and made better. So if we stimulate you to use your brains more we shall have done some service, we shall have done something to save your intellectual life, to broaden it and make character. If as a biologist I survey the realm of nature and seek to make out what is the distinguishing characteristic of man, I have to recognize that it is the value of the individual which distinguishes the human species from every other living species in the world. Man alone is able to profit by the superiority of the individual members of his species. Animals may learn a little from one another. Man alone can learn much. It is owing to this peculiarity in nature of the human species that science exists, that civilization exists, and I believe the recognition of that fact should have a profound influence upon all our political and social questions whenever we have in mind the promotion of human welfare; because, it being a true fact in nature that the average civilization of a community is not correspondent to the average intellectual and moral calibre of its members, but very nearly to the intellectual and moral calibre of its best members, that fact imposes upon us a special duty, that of promoting the development and the education of the best members in the community. And if I were asked to say what in the west seemed to me

the very best thing you had to show, I should say without a moment's hesitation it is the high school buildings here and the high school buildings we have seen in the other cities as we have passed along—emblems, as they are, of the educational system which in the very establishment of its high schools recognizes the fact that there are superior individuals who are worthy a better education than is offered by primary and grammar schools below.

But it does not do to stop there. And I am glad to see that the State of Colorado has started already the development of a university which by its prosperity shows the earnestness with which it has been founded, the devotion which has been spent upon fostering it and which stands as one of the highest marks to the credit of the State. I believe that the very best that we could do for you would be to contribute something to the public recognition of the value of the State University. It seems to me that no citizen of Colorado who has the highest ideal for the future of the state can feel that the state has done its full duty until it has developed its university, not only as it has begun, but farther in the same direction, until it shall have become one of the great universities of the country—I would even say one of the great universities of the world. It is not enough for you to work here for the development of your material resources. It is not enough for you to apply science. We who are carrying on our investigations supply the power, we generate the steam pressure, and the practical man—if I may be pardoned for the innuendo—is the crank which transmits the power to a practical purpose. Unless a state is doing its quota towards the increase of knowledge, it is fulfilling only a part of its duty. If, therefore, our coming here can have such an influence upon any of you as to increase the belief in the value of your university and to spread

that belief among you, making it deeper rooted in the innermost convictions of your great community that the university is the greatest thing in the state, we shall have done a service to you which will show we are grateful for all the magnificent hospitality which has been proffered us, for the perfection of the arrangements made here for our comfort, and that we appreciate your words of welcome, those which have come to us from the Governor, from the Mayor of the city, from the representatives of the business interests of your community and of your educational system. All this we take to heart and we beg to thank you for it with all the sincerity with which we appreciate it. And in return we would offer you this thought which is the inspiration of the professor—that the country is governed by universities, because what is done in the country is done by the men who think, who come out into the world with thoughts which were never there before; and the men who do that, with very rare exceptions, are men who have had their minds severely disciplined by university training. If you look back through the history of the United States and recall men who as statesmen, as inventors, as authors, were creators of any kind of new intellectual product, you will find that there is but a trifling number among those great men who have not come from the universities. And, therefore, it is true as a historical fact that this country is governed by the universities, and there is not a complete government in any state, in the opinion of the members of this Association—I am sure in the opinion of all of them—until there is a great, well-equipped, richly endowed and largely attended university. It is therefore to me the greatest pleasure to say that Colorado has begun with this ambition, and I hope with all my heart that you will carry it through to a fulfilment corresponding to the extraordi-

nary fulfilment which you have achieved in all the other work you have undertaken in the development of your state, and with that wish and with thanks on behalf of our Association I would close with an invitation to you all to attend our meetings; and I would express particularly the hope that all of you who are interested in broad discussions and deep-thought views of scientific problems will take advantage of the opportunity to hear the address of our retiring President, which will be the central and most interesting event of our proceedings. With thanks, therefore, for your courtesy and kindness, and expression of pleasure on behalf of all the members of the Association who are here, I will now close my reply to the hospitable welcomes which have been made us.

*SOME POINTS IN THE EARLY HISTORY AND
PRESENT CONDITION OF THE TEACHING
OF CHEMISTRY IN THE MEDICAL
SCHOOLS OF THE UNITED
STATES.**

IN the scientific awakening of the latter part of the eighteenth century medicine was not the last of the great departments of human learning to take on new vigor. As in earlier years it drew largely from alchemical philosophy for the enrichment of its *materia medica*, and for the justification of a crude therapy, so now the great teachers of physic stood ready to accept the rapidly developing facts and generalizations of the new chemistry, and to apply them in the noble task of elevating a dogmatic empiricism to the plane of a scientific system. From the time of Paracelsus, alchemy, and its offspring, chemistry, had been but the handmaids of medicine, and much of the skill of the workers in these fields was devoted to the preparation of remedies for

various diseases. But, from the labors of Priestley, Scheele, Watt, Cavendish and Lavoisier, the relations were reversed, and the chemists and the apothecaries, the cooks in the kitchen of the doctor, seemed ready to usurp the proud positions of their former masters. The nature of oxidation and the phenomena of respiration changes explained, it was clear that medicine must now depend largely on the development of chemistry for its rational groundwork.

After the downfall of the old iatro-chemistry with its empiricism and evident hollowness, our science had fallen into disrepute in the great European centers of medical learning, and physicians were somewhat slow in taking up the new ideas. But, the way once opened, the development spread rapidly, almost too rapidly in fact, because of the danger always attending hasty generalization.

The educational influences at work in the American colonies in those days were almost wholly English, and the earliest medical schools established here were modeled after those of Great Britain. We find, therefore, that in each one of the medical schools founded in the pioneer days of attempt in professional education a chair of chemistry was provided for as furnishing a necessary part of the medical student's education. Indeed, the first chair of chemistry of any kind to be filled in this country was that in the medical school of the University of Pennsylvania, and the occupant was Dr. Benjamin Rush, a man justly famous in the early history of American medicine, but not known on account of any chemical writings. This was in 1769, and the position was held by him until 1789. In the autumn of that year Dr. Rush was transferred to another department, and Dr. James Hutchinson was elected to fill the place. The latter died in 1793, and Dr. John Carson was appointed his successor in January, 1794, but died

* Address of the Vice-president and Chairman of Section C, Chemistry, at the Denver meeting of the American Association for the Advancement of Science.